**Sustainable electrocatalysts for low temperature fuel cells**

*Stefania Specchia*

*Dept. of Applied Science and Technology, Gre.En2 Group, Politecnico di Torino, Torino (Italy)*

stefania.specchia@polito.it

Fuel cells are devices that efficiently convert the chemical energy of a fuel into electrical energy via electrochemical reactions. Among the wide variety of fuel cell types, low temperature fuel cells (PEMFC and AEMFC) are promising for transportation and portable applications, since they can operate close to ambient conditions. The main drawbacks of low temperature fuel cells are represented by the use of costly Pt-based electrocatalysts at both the anode and the cathode, and in particular the sluggish oxygen reduction reaction (ORR) at the cathode side. Among several types of electrocatalysts for ORR, the most promising alternative to Pt until now are carbonaceous materials doped with N and transition metals (mostly Fe, Co). This lecture will address the main synthesis techniques adopted for the sustainable production of Fe-N-C electrocatalysts, included the use of biomass in a circular economy perspective.